

OCT. 16. 2007 10:07PM

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NO. 1860 P. 4

OCT 16 2007

Application No.: 10/500776  
Docket No.: CL1927USPCT

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Amendments to Drawings

Please amend Figure 1 as shown on the replacement sheet attached to this Amendment. An annotated copy of the replacement sheet showing the changes to Figure 1 is also attached to this Amendment.

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### **REMARKS**

Claims 13-15 and 23-26 have been canceled from the application. Claims 1, 2, 5, 7, 9-12, and 16-21 have been amended. Original claims 3, 4, 6, 8 and 22 remain in the application. All of the pending claims stand rejected. No new claims have been added to the application. No new matter has been added to the application. Support for the recitation of a highly fluorinated polymer membrane can be found in the specification at page 13, lines 5-19 (which references page 7, lines 25-28). Support for the recitation of printing of electrodes can be found in the specification at page 14, lines 22-30.

### ***Restriction Requirement***

The Examiner required restriction under 35 U.S.C 121 and 372 between Group I (claims 1-22), drawn to a process for manufacturing a catalyst coated membrane, and Group II (claims 23-26), drawn to a fuel cell comprising a catalyst coated membrane. Applicants confirm their election of Group I, claims 1-22 for examination at this time. In response to the restriction, claims 23-26 have been canceled from the application.

### ***Drawings***

The Examiner objected to the drawing because the reference character "12" was used to designate both the polymer membrane and the first surface. The Examiner noted that in the specification, the first surface is designated 12'. Applicants note that the reference characters 12, 12' and 12'' are clearly shown in Figure 2 of the drawings. Applicants have amended Figure 1 of the drawings by extending the line extending from the reference character 12 (both instances) to more clearly show that reference character 12 is identifying the membrane, and Applicants have added the reference character 12' as already appeared in Figure 2. These changes are fully supported in the specification at page 14, lines 19-24 and in Figure 2 of the drawings.

### ***Specification***

The Examiner objected to the specification because the word "second" appeared twice on page 15, line 8. Applicants have corrected the noted typographical error as well as another typographical error on page 6, line 32, where the word "be" appears an extra time.

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### *Section 112 Rejections*

The Examiner rejected claims 1-22 under 35 U.S.C. 112, second paragraph as being indefinite.

The Examiner objected to the term "the electrocatalyst coating" in claims 1, 5, 7, and 16 as lacking proper antecedent basis. The claims have been revised to more definitely recite a first electrocatalyst coating composition and a second electrocatalyst coating composition.

The Examiner objected to a term in claim 14 which claim has been canceled from the application.

The examiner also noted that the term "ambient temperatures" in claim 20 lacks antecedent basis and suggested that the term should read "ambient temperature". Applicants have so amended claim 20.

### *Prior Art Rejections*

#### Rejection Under 35 USC 103

Claims 1-8, 10-12, 16-18, and 20-22 stand rejected under 35 U.S.C. 103 as being obvious from Marsacq et al (WO 01/65623 as evidenced by U.S. Publication Number 2003/0022054). The Marsacq patent is directed to electrode membrane assemblies in which the membrane is comprised of a sulphonated polymer with a thermostable skeleton. The Marsacq patent explains that processes used for adhering electrodes to fluorinated thermoplastic membranes (e.g., Nafion® membranes) are "completely unsuitable" for the disclosed membranes with a thermostable skeleton due to their mechanical stiffness. (See Paragraphs 40, 41 and 46). It is therefore not surprising that the Marsacq patent does not disclose or suggest the process recited in amended claim 1.

The process of claim 1 makes it possible to directly print electrodes onto opposite side of a highly fluorinated proton exchange membrane. This makes it unnecessary to prepare electrodes separately for later transfer to the membrane electrode assembly. With the process recited in claim 1, the polymer membrane is supported on a dimensionally stable substrate when the electrodes are printed on both sides of the membrane. In addition, because the polymer membrane is supported on dimensionally stable support substrates throughout the printing process, the dimensional stability of the membrane is maintained.

In the Marsacq patent, the electrodes are prepared in advance and they are applied onto the surface of the still forming membrane while the membrane is wet. It would not be

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possible to print electrodes onto such still wet surfaces of a polymer membranes. In addition, there is no disclosure in the Marsacq patent of printing electrodes onto opposite sides of a polymer membrane while the dimensional stability of the polymer membrane is at all times maintained by dimensionally stable supports. Accordingly, amended claims 1-8, 10-12, 16-18, and 20-22 are not rendered obvious by the Marsacq patent.

#### Double Patenting

The Examiner provisionally rejected claims 1, 5-9, 17 and 19-22 on grounds of non-statutory obviousness-type double patenting as not being patentably distinct from claims 1-15 and 18-20 of copending application No. 10/490,068 ("the '068 application"). The '068 patent application claims an alternative and completely different process for making a catalyst coated membrane than the process disclosed and claimed in the present application. In the process claimed in the '068 application, an electrode is first printed on a temporary support, a polymer solution or dispersion is applied on top of the electrode, the solution or dispersion is then dried to form a membrane, and then an electrode is printed on the exposed side of the dried membrane. The '068 application does not claim or disclose a process in which electrodes are printed on both sides of the membrane. The '068 application also does not disclose a process in which two dimensionally stable support substrates are applied sequentially to a polymer membrane so as to make it possible to print electrodes onto both sides of a polymer membrane while the dimensional stability of the membrane is at all times maintained by the support substrates. Accordingly, the provisional double patenting rejection of claims 1, 5-9, 17 and 19-22 should be withdrawn.

#### Rejection Under 35 USC 103

Claims 1, 5-9, 17 and 19-22 also stand rejected under 35 U.S.C. 103 as being obvious from O'Brien (U.S. Provisional Application 60/349,034 relying upon Publication Number 2004/0201122 A1). The O'Brien application was the priority application for the '068 application discussed immediately above. The O'Brien application is directed to an alternative and completely different process for making a catalyst coated membrane than is claimed in the present application. In the process disclosed in the O'Brien application, an electrode is first printed on a temporary support, a polymer solution or dispersion is applied on top of the electrode, the solution or dispersion is then dried to form a membrane, and then an electrode is printed on the exposed side of the dried membrane. The O'Brien application

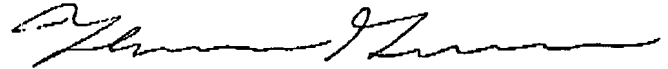
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does not disclose a process in which electrodes are printed on both sides of the membrane while the polymer membrane is supported on dimensionally stable support substrates throughout the printing process. Accordingly, claims 1, 5-9, 17 and 19-22 are not rendered obvious by the O'Brien application.

It is believed that the foregoing is a complete response to the subject Office Action. In view of the foregoing, allowance of the above-referenced application is respectfully requested. If any fee is required to authorize or obtain consideration of this response, please charge such fee to Deposit Account No. 04-1928.

Respectfully submitted,



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Dated: October 16, 2007**Attachments**

Replacement Sheet 1 of Drawings

Annotated Sheet Showing Changes in Replacement Sheet 1 of Drawings

"Annotated Sheet Showing Changes"

1/1

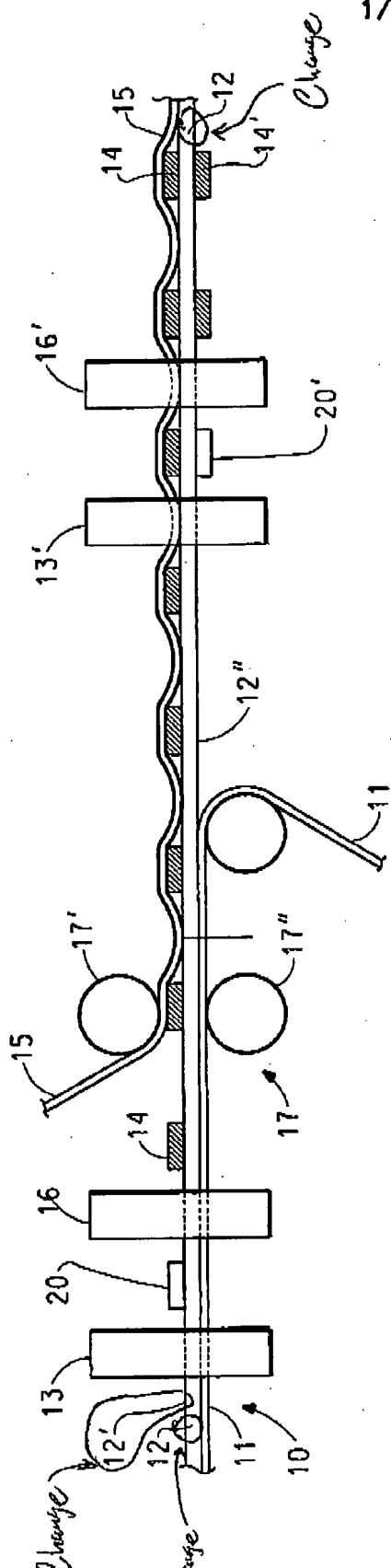


FIG. 1

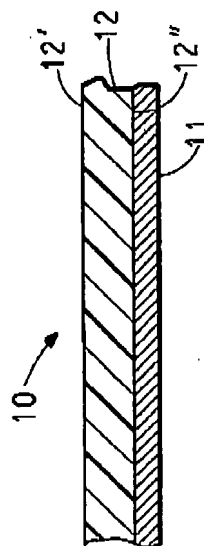


FIG. 2